

WHAT IS CLAIMED IS:

1. An organic light emitting diode display, comprising:
 - a) a substrate;
 - b) a plurality of OLEDs formed on the substrate, the OLEDs emitting polarized light wherein the OLEDs comprise:
 - i) a layer defining a periodic grating structure,
 - ii) a first electrode layer conforming to the grating structure,
 - iii) an OLED material layer formed over the first electrode layer and conforming to the grating structure, and
 - iv) a second electrode layer formed over the OLED material layer and conforming to the grating structure, wherein the first and/or second electrode layers are metallic layers, whereby the periodic grating structure induces surface plasmon cross coupling in the metallic electrode layer(s) to emit polarized light; and
 - c) a polarizer located over the substrate through which the polarized light is emitted.
2. The display claimed in claim 1, wherein the polarizer is a circular polarizer.
3. The display claimed in claim 1, wherein the display is a top emitting display having an encapsulating cover, and the polarizer is affixed to the encapsulating cover.
4. The display claimed in claim 1, wherein the display is a bottom emitting display and the polarizer is affixed to the substrate.
5. The display claimed in claim 1, wherein the OLED material layer includes portions for emitting different colors of light and the period of the grating structure is different for the different colors.

6. The display claimed in claim 1, wherein the layer defining a grating structure is a light absorbing layer.

7. The display claimed in claim 1, wherein the metallic layers are opaque.

8. The display claimed in claim 1, wherein the grating structure is a two dimensional grating.

9. The display claimed in claim 1, wherein the display is an active matrix display.

10. The display claimed in claim 1, wherein the display is a passive matrix display.

11. The display claimed in claim 1, wherein the first electrode layer is non-metallic and further comprising a metallic layer formed on the first portions of the first electrode layer and conforming to the grating structure.

12. The display claimed in claim 1, wherein the first electrode layer is indium tin oxide.

13. The display claimed in claim 1, wherein the OLEDs further comprise an insulating layer formed over the substrate, the insulating layer defining a periodic grating structure; a first electrode layer formed over the insulating layer and conforming to the grating structure; an OLED material layer formed over the first electrode layer and conforming to the grating structure; and a second electrode layer formed over the OLED material layer and conforming to the grating structure, wherein the first and/or second electrode layers are metallic

layers, whereby the periodic grating structure induces surface plasmon cross coupling in the metallic electrode layer(s).

14. The display claimed in claim 5, further comprising a diffuser to mitigate the effect of color aberrations.

15. The display claimed in claim 14, wherein the diffuser is applied to the exterior of the device.

16. The display claimed in claim 14, wherein the diffuser is incorporated into the cover of a top emitting display or the substrate of a bottom emitting display.